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BROMBERG & SUNSTEIN LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/780,500	OH, BYONG MOK	
	Examiner	Art Unit	
	Crystal Murdoch	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 28 February 2008.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-3,5-28 and 32-37 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-3,5-28 and 32-37 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 17 February 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

I. Response to Arguments

Applicants' response to the last Office Action, mailed 28 November 2007 has been entered and made of record.

Applicants' amendments to claims 1-3, 5-6, 8-9, 11, 13-22, 32-34, and 36-37, as well as the addition of claim 38 have been noted and fully addressed in the Office Action below.

The rejection of claim 37 under 35 USC §112, second paragraph is withdrawn in view of Applicant's amendment.

Applicant's arguments filed 28 February 2008 have been fully considered but they are not persuasive.

As to the newly added claim limitation, "… the object occupying a field of view of more than 180 degrees;" this limitation is treated as an object which spans a field of view greater than 180 degrees such as the interior of a room.

Szeliski is cited for creating environment maps, in which the panoramic mosaic images are texture mapped onto 3D models, such as a cube or a

sphere (See Szeliski: Figs. 27-31, 37A-D and 38; Cols. 27-28, Lns. 33-36, respectively, "… the process described here supports the use of traditional texture-mapped models, i.e., environment maps. The shape of the model and the embedding of each face into texture space are left up to the user. This choice can range from something as simple as a cube with six separate texture maps, to something as complicated as a subdivided dodecahedron, or even a latitude-longitude tessellated globe. (This latter representation is equivalent to a spherical map in the limit as the globe facets become infinitesimally small. The important difference is that even with large facets, an exact rendering can be obtained with regular texture-mapping methods and hardware.)." Furthermore, in Col. 31, Lns. 65-67, Szeliski teaches, "FIG. 38 shows the results of mapping a panoramic mosaic onto a longitude-latitude tessellated globe."). Szeliski also teaches that an image mosaic that covers a 360 field of view is a "complete environment map" (See Szeliski: Col. 5, Lns. 7-9). Therefore, if the claim is interpreted such that the object corresponds to a room, Szeliski teaches such a limitation in the teaching of a cube texture mapped with an environment map.

The rejection below has been modified to accommodate the additional limitation.

II. Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. Claims 22-28 and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Szeliski et al. (US Patent Number 6,157,747, herein referred to as Szeliski).

Regarding independent claims 22 and 32, Szeliski teaches a system and method for projecting texture information onto a geometric feature within an image panorama (See Szeliski; Fig. 2B, Item 270; Col. 27, Lns. 62-66), the method comprising:

- Receiving instructions from a user identifying a three-dimensional geometric surface within an image panorama (See Szeliski: Col. 27-28, Lns. 62-2, respectively, wherein, "The shape of the model and the embedding of each face into texture space are left up to the user. This

choice can range from something as simple as a cube with six separate texture maps, to something as complicated as a subdivided dodecahedron, or even a latitude-longitude tessellated globe."), the image panorama containing a feature having one or more textures (See Szeliski: Col. 5, Lns. 27-35), the feature occupying a field of view of more than 180 degrees in the panorama (See Szeliski: Col. 5, Lns. 7-9, "complete environment map");

- Determining a directional vector from the three-dimensional geometric surface (See Szeliski: Fig. 15; Col. 22, Lns. 4-31);
- Aligning the image panoramas relative to each other (See Szeliski: Fig. 17; Col. 23, Lns. 10-12, wherein minimizing the differences between ray directions aligns the images.);
- Creating a geometric model of the image panorama based at least in part on the three-dimensional geometric surface and the directional vector (See Szeliski: Col. 7, Lns. 29-33, "By mapping the mosaic onto an arbitrary texture-mapped polyhedron surrounding the origin, the virtual environment is viewed using standard 3D graphics viewers and hardware (block 160) without requiring special purpose players." In Col. 22, Lns. 4-31, Szeliski teaches the direction vectors, which are used to align the images of the panoramic image. Thus, the geometric

model of the visual scene is dependent on the geometric shapes of the surfaces of the polyhedron to be texture mapped, and the texture map applied to the surfaces of the polyhedron, which is the panoramic mosaic determined using the direction vectors.),

- Wherein creating a geometric model includes associating geometry information with the feature (See Szeliski: Figs. 27-31, 37A-D and 38; Cols. 27-28, Lns. 33-36, respectively, "... the process described here supports the use of traditional texture-mapped models, i.e., environment maps. The shape of the model and the embedding of each face into texture space are left up to the user. This choice can range from something as simple as a cube with six separate texture maps, to something as complicated as a subdivided dodecahedron, or even a latitude-longitude tessellated globe. (This latter representation is equivalent to a spherical map in the limit as the globe facets become infinitesimally small. The important difference is that even with large facets, an exact rendering can be obtained with regular texture-mapping methods and hardware.)."), the geometry information comprising 3-D coordinates describing the position and orientation of the feature in a reference coordinate system (See Szeliski: Col. 31, Lns. 65-67, "FIG. 38 shows the

results of mapping a panoramic mosaic onto a longitude-latitude tessellated globe."); and

- Applying the one or more textures to the feature in the image panorama based on the geometric model (See Szeliski: Fig. 2B, Item 270; Col. 28, Lns. 13-15, wherein Szeliski teaches, "...efficiently computing texture map color values for any geometry and choice of texture map coordinates.").

Regarding claim 23, as it depends from claim 22, Szeliski teaches a method wherein the instructions are received using an interactive drawing tool (See Szeliski: Fig. 2A, Item 42; Col. 8, Lns. 30-32).

Regarding claim 24, as it depends from claim 22, Szeliski teaches a method wherein the three-dimensional geometric surface is one of a floor, a wall, or a ceiling (See Szeliski: Col. 27, Lns. 64-67, wherein the model can be a cube with six separate texture maps for each surface. Using an appropriate environment map would cause the top surface to be a ceiling, the bottom surface to be a floor, etc.).

Regarding claim 25, as it depends from claim 22, Szeliski teaches a method wherein the directional vector is orthogonal to the planar surface (See Szeliski: Fig. 15; Col. 22, Lns. 4-6).

Regarding claim 26, as it depends from claim 22, Szeliski teaches a method wherein the geometric model comprises depth information (See Szeliski: Figs. 27 and 30; Col. 28, Lns. 29-33).

Regarding claim 27, as it depends from claim 22, Szeliski teaches a method wherein the texture information comprises color information (See Szeliski: Col. 28, Lns. 13-18).

Regarding claim 28, as it depends from claim 22, Szeliski teaches a method comprising environment based texture mapping comprises luminance information (See Szeliski: Fig. 2B; Col. 5, Lns. 27-30, wherein luminance is inherent to environment maps and texture maps.).

Regarding claim 33, as it depends from claim 32, Szeliski teaches a system wherein the input images comprise two-dimensional images (See Szeliski: Figs. 3-4; Col. 9, Lns. 56-58, wherein a camera 310 having its optical center fixed at point C (FIG. 3) captures a sequence of 2D still images I_0, I_1, I_2, $I_{3...}$).

Regarding claim 34, as it depends from claim 32, Szeliski teaches the input images comprise three-dimensional images including geometry information (See Szeliski: Figs. 3-4 and 6; Col. 9, Lns. 56-62, wherein the camera captures a sequence of 2D still images (I_0, I_1, I_2, I_3.) as it pans, the center rays of these images being focused on 3D points (P_0, P_1, P_2, $P_{3...}$) at a focal length f from the optical center point C. The points P_i are defined relative to a fixed 3D world coordinate system (P_x, P_y, P_z). Since the three-dimensional images correspond to the two-dimensional images that include depth information in the form of focal length. The geometry information is the inverted V shape shown in both figures 4 and 6.).

Regarding claim 35, as it depends from claim 32, Szeliski teaches aligning the image panoramas according to instructions received from a user (See Szeliski: Col. 27, Lns. 64-66).

III. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

A. Claims 1-3, 5-6, and 8-10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Szeliski in view of Luken (US Patent Number 5,923,334).

Regarding independent claim 1, the rationale of independent claims 22 and 32 is incorporated herein. Szeliski does not expressly disclose the additional limitation of determining a directional vector for ***each*** image panorama. Nevertheless, Luken is cited for teaching eight direction vectors D0-D7 associated with six rectangular images mapped to the inside of an octahedron (See Luken: Figs. 7-10, 14 and 17; Col. 7, Lns. 28-36, wherein it is determined which of the six rectangular images is intersected by one of the eight direction vectors.). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used direction vectors for each image within an environment map that is mapped to the sides of an octahedron, as taught by Luken, with the three-dimensional model environment map of the visual scene, as taught by Szeliski, because Luken: (1) is directed to the same problem of using polyhedral environment maps to create and view three dimensional images from data representing multiple views of a scene; (2) is in the same field of endeavor of image processing systems;

and (3) Luken expressly suggests that the direction vectors provide an efficient system for generating and viewing three-dimensional panoramic images based environment maps, and offer an improved level of interactive graphical feedback (See Luken: Col. 3, Lns. 5-8).

Regarding claim 2, as it depends from claim 1, Szeliski teaches the directional vector is determined based, at least in part, on instructions identifying elements of the image panorama received from a user (See Szeliski: Col. 8, Lns. 30-32 and Col. 27, Lns. 64-66).

Regarding claim 3, as it depends from claim 2, Szeliski teaches a method wherein the instructions from the user identify two or more substantially parallel features in the image (See Szeliski: Col. 20, Line 64 – Col. 21, Line 6 and Lines 25-34).

Regarding claim 5, as it depends from claim 2, Szeliski teaches a method wherein the instructions from the user identifying a horizon line of the image panorama (See Szeliski: Fig 4: Col. 9, Lns. 54-62).

Regarding claim 6, as it depends from claim 2, Szeliski teaches a method wherein the instructions comprise the identification of two or more areas of the image, each area containing one or more elements and further

comprising automatically identifying the two elements contained in the two or more areas (See Szeliski: Fig. 6; Col. 20, Line 49 – Col. 21, Line 24, wherein a feature-based point correspondence is established between a pair of images by dividing each image into patches and identifying prospective “feature” points within the patches.).

Regarding claim 8, as it depends from claim 1, Szeliski does not expressly suggest that the image panoramas are aligned relative to the reference coordinate system such that the directional vector is at least substantially parallel to one axis of the reference coordinate system. Nevertheless, Luken is cited for determining for each of the eight direction vectors D0, D1 ,D2 … D7, which of the six axis-aligned, rectangular images is intersected by the direction vector Di (See Luken: Fig. 7, Item 707; Col. 6, Line 40—Col. 7, Line 36). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have aligned the direction vector with an axis of the reference coordinate system, as taught by Luken, with the panoramic mosaic method, as taught by Szeliski, because the numerical complexity of a vector representation is reduced if the vector is aligned with an axis.

Regarding claim 9, as it depends from claim 1, Szeliski does not expressly suggest that the image panoramas are aligned relative to the reference coordinate system such that the directional vector is at least substantially orthogonal to one axis of the reference coordinate system. Nevertheless, Luken is cited for determining for each of the eight direction vectors D0, D1 ,D2 ... D7, which of the six axis-aligned, rectangular images is intersected by the direction vector Di (See Luken: Fig. 6A and 7, Item 707; Col. 6, Line 40—Col. 7, Line 36). Since the six rectangular images are axis aligned, then a directional vector that is parallel to one axis must be perpendicular to the other two spatial axes. In other words, in order for a directional vector to intersect one of the rectangular images, that vector must be substantially parallel to one axis, which requires it to be substantially perpendicular to the others. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have aligned the direction vector with an axis of the reference coordinate system, as taught by Luken, with the panoramic mosaic method, as taught by Szeliski, because the numerical complexity of a vector representation is reduced if the vector is perpendicular to an axis because it suggests that the vector is parallel with another axis.

Regarding claim 10, as it depends from claim 1, Szeliski teaches a method wherein the image panoramas are aligned according to instructions received from a user (See Szeliski: Col. 27, Lns. 64-66, wherein the user aligns the image panoramas into texture space.).

B. Claims 11-12 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szeliski in view of Seago.

Regarding independent claims 11 and 36, the rationale of independent claims 22 and 32 is incorporated herein. Szeliski does not expressly disclose the following additional limitations:

- Receiving an edit to the object in the panorama;
- Transforming the edit relative to a viewpoint defined by the point source; and
- Projecting the transformed edit onto the object.

Seago teaches receiving an edit to a selected object, transforming the edit relative to a viewpoint defined by the point source, and projecting the transformed edit onto the selected object, as disclosed in figure 3 and column 6, lines 1-34, provided below:

> "The viewpoint is along a normal to the image plane at the image's center. The three-dimensional coordinate space (SWCS) is set at the center of the perspective image. Next, at block 62, the intersection points between the image plane and the line-of-sight from the viewpoint to the endpoints of line segments extended to an approximate infinite point along each axis of the three-dimensional coordinate space (SWCS) are determined. In other words, the end of each axis is projected back to the image plane. At block 64, each calculated vanishing point is compared to the corresponding determined projected axis endpoint.
>
> "However, if the non-linear optimization algorithm determines that the error function is not at an acceptably low level, the three-dimensional coordinate space orientation and viewpoint focal length are adjusted based on the determined error function."

The edit instruction is received when decision block 70 in figure 3 branches along the "NO" path, indicating that the result of the error function is not sufficiently low. The edit is executed by adjusting the orientation of the three-dimensional coordinate space. Once the edit is complete, the process loops back to block 62 in which the results of the edit in three-dimensions are transformed into 2D coordinates and projected back to the image plane along the line-of-sight. The line-of-sight corresponds to the viewpoint, and therefore the transform of the edit occurs relative to the viewpoint defined by the point source.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the three-dimensional object editing abilities of **Error! Reference source not found.**, to modify the three-dimensional environment map, as taught by Szeliski, because

Error! Reference source not found. is in the same field of endeavor of generating three-dimensional computer graphics using image capture devices; and **Error! Reference source not found.** expressly suggests that this method of object extraction produces accurate three-dimensional objects more efficiently than conventional systems that try to extract the three-dimensional objects using analytical mathematical interpretations and orthogonal image analysis (See Seago: Col. 11, Lns. 49-55).

Regarding claim 12, as it depends from claim 11, Szeliski teaches the three-dimensional model comprises at least one of depth information and geometry information (See Szeliski: Figs. 2B, 27, 30 and 32; Col. 29, Lns. 58-61, wherein a "3D model" implies geometric shape, as well as height, width, and depth.).

C. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Szeliski, in view of Luken, and in further view of Blank (US Patent Number 5,469,536).

Regarding claim 7, as it depends from claim 6, the combination of Szeliski and Luken does not expressly suggest using edge detection to

automatically identify the two elements. Nevertheless, Blank teaches detecting the edges of an object and separates portions of the image that are outside the edge of the object (i.e., the background component) from portions of the image that are inside the edge (See Blank: Col. 4, Lns. 17-21). The two elements are therefore identified as those elements within the edge, and those outside the edge. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used the edge detection methods, as taught by Blank, as an alternative to patch-based division, as taught by Szeliski, as modified by Luken, because it is an effective way to divide the image into smaller portions to conquer aligning all aspects of an image.

D. Claims 13-21 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szeliski, in view of Seago, and in further view of Blank.

Regarding claim 13, as it depends from claim 11, the combination of Szeliski and Seago does not expressly suggest receiving an edit to color information associated with the objects of the image. Blank is cited for teaching editing an image having a plurality of pixels, each pixel having a color, comprising the steps of selecting a plurality of colors from among those present in the image to form a set of selected colors, and

manipulating only those pixels having a color defined in the set of selected colors so as to change a visual feature of the image (See Blank: Col. 6, Lns. 29-47). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have allowed modification of the colors within an image, as taught by Blank, to manipulate the colors within the images used to create the panoramic image mosaics, as taught by Szeliski, as modified by Seago, because it would enable the user to quickly and efficiently modify or enhance the appearance of an image to desired goal (See Blank: Col. 6, Lns. 23-28).

Regarding claim 14, as it depends from claim 11, the combination of Szeliski and Seago does not expressly suggest receiving an edit to alpha information associated with the objects of the image. Blank is cited for teaching determining whether to reset the transparency alpha-bit flag. If the transparency flag is reset, it is set to opaque (See Blank: Fig. 11; Col. 20, Lns. 61-66). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have allowed modification of the alpha values within an image, as taught by Blank, to control the presentation of the images of the panoramic image mosaics, as taught by Szeliski, as modified by Seago, for the same reasons given in claim 13.

Regarding claim 15, as it depends from claim 11, the combination of Szeliski and Seago does not expressly suggest receiving an edit to depth information associated with the objects of the image. Blank is cited for moving several objects to various Z depth layers (See Blank: Col. 13, Lns. 8-16). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have moved objects in three-dimensions, as taught by Blank, to manipulate the objects extracted from the mosaics, as taught by the combination of Szeliski and Seago, for the same reasons given in claim 13.

Regarding claim 16, as it depends from claim 11, the combination of Szeliski and Seago does not expressly suggest receiving an edit to geometry information associated with the objects of the image. Blank is cited for teaching trimming, which allows the user to trim off any undesired edges of an object to reveal the background below (See Blank: Col. 47, Lns. 11-20). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used a manipulation tools, as taught by Blank, to manipulate the objects extracted from the panoramic image mosaics, as taught by Szeliski, as modified by Seago, for the same reasons given in claim 13.

Regarding claim 17, as it depends from claim 11, the combination of Szeliski and Seago does not expressly suggest providing a user with an interactive drawing tool that specifies edits for one or more objects of the image or receiving the edits made by the user using the interactive drawing tool. Blank is cited for teaching function calls, wherein attributes to be changed are pre-selected or selected by the user. When function is accessed by a user call, the system operates as a highly interactive and very powerful image editing tool. The function accesses preset gamma attributes, layer, and object or area selections, e.g., all pixels on layer one with a hue of blue at a value range of 10 to 75 (See Blank: Col. 21, Lns. 18-23) It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used manipulation tools, as taught by Blank, to manipulate the objects extracted from the panoramic image mosaics, as modified by Seago, for the same reasons given in claim 13.

Regarding claims 18 and 37, as they depend from claims 17 and 36, respectively, the combination of Szeliski and Seago does not expressly suggest the interactive drawing tool is one of an extrusion tool, a ground plane tool, a depth chisel tool, and a non-uniform rational B-spline tool.

Blank is cited for teaching trimming, which allows the user to trim off any undesired edges of an object to reveal the background below, which corresponds to the depth chisel tool (See Blank: Col. 47, Lns. 11-20). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used a manipulation tools, as taught by Blank, to manipulate the objects extracted from the panoramic image mosaics, as taught by Szeliski, as modified by Seago, for the same reasons given in claim 13.

Regarding claim 19, as it depends from claim 17, the combination of Szeliski and Seago does not expressly suggest interactive drawing tool specifies a selected value for depth for objects of the image. Blank is cited for teaching tests to see if an object is at the top layer (Z=31) or at the bottom layer (Z=0) (See Blank: Col. 22, Lns. 35-62). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used a manipulation tools, as taught by Blank, to manipulate the objects extracted from the panoramic image mosaics, as taught by Szeliski, as modified by Seago, for the same reasons given in claim 13.

Regarding claim 20, as it depends from claim 17, the combination of Szeliski and Seago does not expressly suggest the interactive drawing tool incrementally adds to the depth for objects of the image. Blank is cited for teaching area addition, which allows the user to add additional selections to the current selection. Once the user clicks the area addition tool, "add" mode is retained until it is clicked again or switched to a different selection tool (drag box, drag free, color select, or brush select) (See Blank: Col. 34, Lns. 8-11). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used a manipulation tools, as taught by Blank, to manipulate the objects extracted from the panoramic image mosaics, as taught by Szeliski, as modified by Seago, for the same reasons given in claim 13.

Regarding claim 21, as it depends from claim 17, the combination of Szeliski and Seago does not expressly suggest the interactive drawing tool incrementally subtracts from the depth for objects of the image. Blank is cited for teaching area subtraction, which allows the user to deselect certain regions of the currently selected area. Click on the Area Subtraction tool and select areas to be subtracted. Again, "subtract" mode is retained until it is clicked again or switched to a different

selection tool (drag box, drag free, color select, or brush select) (See Blank: Col. 34, Lns. 22-26). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have used a manipulation tools, as taught by Blank, to manipulate the objects extracted from the panoramic image mosaics, as taught by Szeliski, as modified by Seago, for the same reasons given in claim 13.

IV. Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date

of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal Murdoch whose telephone number is (571)270-1043. The examiner can normally be reached on Mon. - Fri. 10:00am - 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Crystal Murdoch/
Examiner, Art Unit 2628

/Kee M Tung/
Supervisory Patent Examiner, Art Unit 2628

/Crystal Murdoch/
Examiner, Art Unit 2628

/Kee M Tung/
Supervisory Patent Examiner, Art Unit 2628